

2019 CINT Publications

1. Abudayyeh, H., Lubotzky, B., Majumder, S., Hollingsworth, J. A. & Rapaport, R. "Purification of Single Photons by Temporal Heraldng of Quantum Dot Sources". *ACS Photonics* 6, 446-452, (2019) [doi:10.1021/acsphotonics.8b01396].
2. Agarwal, D., Ren, M. L., Berger, J. S., Yoo, J., Pan, A. & Agarwal, R. "Nanocavity-Enhanced Giant Stimulated Raman Scattering in Si Nanowires in the Visible Light Region". *Nano Letters* 19, 1204-1209, (2019) [doi:10.1021/acs.nanolett.8b04666].
3. Agarwal, D., Yoo, J., Pan, A. L. & Agarwal, R. "Cavity Engineering of Photon-Phonon Interactions in Si Nanocavities". *Nano Letters* 19, 7950-7956, (2019) [doi:10.1021/acs.nanolett.9b03120].
4. Aksoy, D., Dingreville, R. & Spearot, D. E. "An embedded-atom method potential parameterized for sulfur-induced embrittlement of nickel". *Modelling and Simulation in Materials Science and Engineering* 27, 21, (2019) [doi:10.1088/1361-651X/ab4c48].
5. Albo, A., Flores, Y. V., Hu, Q. & Reno, J. L. "Split-well direct-phonon terahertz quantum cascade lasers". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5089854].
6. Ali, H. P. A., Radchenko, I., Li, N. & Budiman, A. "Effect of multilayer interface through in situ fracture of Cu/Nb and Al/Nb metallic multilayers". *Journal of Materials Research* 34, 1564-1573, (2019) [doi:10.1557/jmr.2018.449].
7. Aydogan, E., Weaver, J. S., Carvajal-Nunez, U., Schneider, M. M., Gigax, J. G., Krumwiede, D. L., Hosemann, P., Saleh, T. A., Mara, N. A., Hoelzer, D. T., Hilton, B. & Maloy, S. A. "Response of 14YWT alloys under neutron irradiation: A complementary study on microstructure and mechanical properties". *Acta Materialia* 167, 181-196, (2019) [doi:10.1016/j.actamat.2019.01.041].
8. Bagge-Hansen, M., Bastea, S., Hammons, J. A., Nielsen, M. H., Lauderbach, L. M., Hodgin, R. L., Pagoria, P., May, C., Aloni, S., Jones, A., Shaw, W. L., Bukovsky, E. V., Sinclair, N., Gustavsen, R. L., Watkins, E. B., Jensen, B. J., Dattelbaum, D. M., Firestone, M. A., Huber, R. C., Ringstrand, B. S., Lee, J. R. I., van Buuren, T., Fried, L. E. & Willey, T. M. "Detonation synthesis of carbon nano-onions via liquid carbon condensation". *Nature Communications* 10, 8, (2019) [doi:10.1038/s41467-019-11666-z].
9. Bai, F., Bian, K. F., Huang, X., Wang, Z. W. & Fan, H. Y. "Pressure Induced Nanoparticle Phase Behavior, Property, and Applications". *Chemical Reviews* 119, 7673-7717, (2019) [doi:10.1021/acs.chemrev.9b00023].
10. Baitimirova, M., Andzane, J., Viter, R., Fraisse, B., Graniel, O., Bechelany, M., Watt, J., Peckus, D., Tamulevicius, S. & Erts, D. "Improved Crystalline Structure and Enhanced Photoluminescence of ZnO Nanolayers in Bi₂Se₃/ZnO Heterostructures". *Journal of Physical Chemistry C* 123, 31156-31166, (2019) [doi:10.1021/acs.jpcc.9b08417].
11. Barkholtz, H. M., Preger, Y., Ivanov, S., Langendorf, J., Torres-Castro, L., Lamb, J., Chalamala, B. & Ferreira, S. R. "Multi-scale thermal stability study of commercial lithium-ion batteries as a

- function of cathode chemistry and state-of-charge". *Journal of Power Sources* 435, 9, (2019) [doi:10.1016/j.jpowsour.2019.226777].
- 12. Barr, C. M., El-Atwani, O., Kaoumi, D. & Hattar, K. "Interplay Between Grain Boundaries and Radiation Damage". *Jom* 71, 1233-1244, (2019) [doi:10.1007/s11837-019-03386-y].
 - 13. Beechem, T. E., Saltonstall, C. B., Gilbert, T., Matson, J., Ugwu, F., Kasica, R., Bezares, F. J., Valentine, J. & Caldwell, J. D. "Influence of spatial dispersion on spectral tuning of phonon-polaritons". *Physical Review B* 100, 11, (2019) [doi:10.1103/PhysRevB.100.205419].
 - 14. Beierle, A., Gieri, P., Pan, H. Q., Heagy, M. D., Manjavacas, A. & Chowdhury, S. "Titanium nitride nanoparticles for the efficient photocatalysis of bicarbonate into formate". *Solar Energy Materials and Solar Cells* 200, 7, (2019) [doi:10.1016/j.solmat.2019.109967].
 - 15. Bennet, R. K., Hojem, A. & Zink, B. L. "Thermal gradients and anomalous Nernst effects in membrane-supported nonlocal spin valves". *Physical Review B* 100, 12, (2019) [doi:10.1103/PhysRevB.100.104404].
 - 16. Berg, M., Liu, F. Z., Smith, S., Copeland, G., Chan, C. K., Mohite, A. D., Beechem, T. E. & Ohta, T. "Imaging Atomically Thin Semiconductors Beneath Dielectrics via Deep Ultraviolet Photoemission Electron Microscopy". *Physical Review Applied* 12, 8, (2019) [doi:10.1103/PhysRevApplied.12.064064].
 - 17. Bhowmick, S., Espinosa, H., Jungjohann, K., Pardoen, T. & Pierron, O. "Advanced microelectromechanical systems-based nanomechanical testing: Beyond stress and strain measurements". *Mrs Bulletin* 44, 487-493, (2019) [doi:10.1557/mrs.2019.123].
 - 18. Billstrand, B., Bian, K. F., Alarid, L. & Fan, H. Y. "Surfactant-Assisted Synthesis of Monodisperse Methylammonium Lead Iodide Perovskite Nanocrystals". *Journal of Nanoscience and Nanotechnology* 19, 465-469, (2019) [doi:10.1166/jnn.2019.15768].
 - 19. Blagg, K., Greymountain, T., Kern, W. & Singh, M. "Template-based electrodeposition and characterization of niobium nanowires". *Electrochemistry Communications* 101, 39-42, (2019) [doi:10.1016/j.elecom.2019.02.011].
 - 20. Bogan, A., Studenikin, S., Korkusinski, M., Gaudreau, L., Zawadzki, P., Sachrajda, A., Tracy, L., Reno, J. & Hargett, T. "Single hole spin relaxation probed by fast single-shot latched charge sensing". *Communications Physics* 2, 8, (2019) [doi:10.1038/s42005-019-0113-0].
 - 21. Bollinger, J. A. & Stevens, M. J. "Diverse balances of tubulin interactions and shape change drive and interrupt microtubule depolymerization". *Soft Matter* 15, 8137-8146, (2019) [doi:10.1039/c9sm01323g].
 - 22. Bonca, J., Trugman, S. A. & Berciu, M. "Spectral function of the Holstein polaron at finite temperature". *Physical Review B* 100, 8, (2019) [doi:10.1103/PhysRevB.100.094307].
 - 23. Boyce, B. L. & Uchic, M. D. "Progress toward autonomous experimental systems for alloy development". *Mrs Bulletin* 44, 273-280, (2019) [doi:10.1557/mrs.2019.75].

24. Briot, N. J., Kosmidou, M., Dingreville, R., Hattar, K. & Balk, T. J. "In situ TEM investigation of self-ion irradiation of nanoporous gold". *Journal of Materials Science* 54, 7271-7287, (2019) [doi:10.1007/s10853-019-03385-z].
25. Bufford, D. C., Barr, C. M., Wang, B. M., Hattar, K. & Haque, A. "Application of In Situ TEM to Investigate Irradiation Creep in Nanocrystalline Zirconium". *Jom* 71, 3350-3357, (2019) [doi:10.1007/s11837-019-03701-7].
26. Buzi, L., Yeh, M., Yeh, Y. W., Donaldson, O. K., Patino, M. I., Trelewicz, J. R., Yao, N., Doerner, R. & Koel, B. E. "Deuterium and helium ion irradiation of nanograined tungsten and tungsten-titanium alloys". *Nuclear Materials and Energy* 21, 6, (2019) [doi:10.1016/j.nme.2019.100713].
27. Cardozo, T. M., Galliez, A. P., Borges, I., Plasser, F., Aquino, A. J. A., Barbatti, M. & Lischka, H. "Dynamics of benzene excimer formation from the parallel-displaced dimer". *Physical Chemistry Chemical Physics* 21, 13916-13924, (2019) [doi:10.1039/c8cp06354k].
28. Casias, L. K., Morath, C. P., Steenbergen, E. H., Webster, P. T., Kim, J. K., Cowan, V. M., Balakrishnan, G. & Krishna, S. "Carrier concentration and transport in Be-doped InAsSb for infrared sensing applications". *Infrared Physics & Technology* 96, 184-191, (2019) [doi:10.1016/j.infrared.2018.11.024].
29. Chang, C. C., Nogan, J., Yang, Z. P., Kort-Kamp, W. J. M., Ross, W., Luk, T. S., Dalvit, D. A. R., Azad, A. & Chen, H. T. "Highly Plasmonic Titanium Nitride by Room-Temperature Sputtering". *Scientific Reports* 9, 9, (2019) [doi:10.1038/s41598-019-51236-3].
30. Chang, C. C., Zhao, Z. X., Li, D. F., Taylor, A. J., Fan, S. H. & Chen, H. T. "Broadband Linear-to-Circular Polarization Conversion Enabled by Birefringent Off-Resonance Reflective Metasurfaces". *Physical Review Letters* 122, 6, (2019) [doi:10.1103/PhysRevLett.123.237401].
31. Chen, A. P., Dai, Y. M., Eshghinejad, A., Liu, Z., Wang, Z. C., Bowlan, J., Knall, E., Civale, L., MacManus-Driscoll, J. L., Taylor, A. J., Prasankumar, R. P., Lookman, T., Li, J. Y., Yarotski, D. & Jia, Q. X. "Competing Interface and Bulk Effect-Driven Magnetoelectric Coupling in Vertically Aligned Nanocomposites". *Advanced Science*, 7, (2019) [doi:10.1002/advs.201901000].
32. Chen, A. P., Harrell, Z., Lu, P., Enriquez, E., Li, L. G., Zhang, B., Dowden, P., Chen, C. L., Wang, H. Y., MacManus-Driscoll, J. L. & Jia, Q. X. "Strain Enhanced Functionality in a Bottom-Up Approach Enabled 3D Super-Nanocomposites". *Advanced Functional Materials* 29, 8, (2019) [doi:10.1002/adfm.201900442].
33. Chen, A. P., Su, Q., Han, H., Enriquez, E. & Jia, Q. X. "Metal Oxide Nanocomposites: A Perspective from Strain, Defect, and Interface". *Advanced Materials* 31, 30, (2019) [doi:10.1002/adma.201803241].
34. Chen, E. Y., Deo, C. & Dingreville, R. "Atomistic simulations of temperature and direction dependent threshold displacement energies in alpha- and gamma-uranium". *Computational Materials Science* 157, 75-86, (2019) [doi:10.1016/j.commatsci.2018.10.026].
35. Chen, E. Y., Deo, C. & Dingreville, R. "Irradiation resistance of nanostructured interfaces in Zr-Nb metallic multilayers". *Journal of Materials Research* 34, 2239-2251, (2019) [doi:10.1557/jmr.2019.42].

36. Chen, J., Gao, L., Jin, Y., Reno, J. L. & Kumar, S. "High-intensity and low-divergence THz laser with 1D autofocusing symmetric Airy beams". *Optics Express* 27, 22877-22889, (2019) [doi:10.1364/oe.27.022877].
37. Chen, Y. X., Hintsala, E., Li, N., Becker, B. R., Cheng, J. Y., Nowakowski, B., Weaver, J., Stauffer, D. & Mara, N. A. "High-Throughput Nanomechanical Screening of Phase-Specific and Temperature-Dependent Hardness in Al_xFeCrNiMn High-Entropy Alloys". *Jom* 71, 3368-3377, (2019) [doi:10.1007/s11837-019-03714-2].
38. Cheng, L., Wang, X. B., Yang, W. F., Chai, J. W., Yang, M., Chen, M. J., Wu, Y., Chen, X. X., Chi, D. Z., Goh, K. E. J., Zhu, J. X., Sun, H. D., Wang, S. J., Song, J. C. W., Battiato, M., Yang, H. & Chia, E. E. M. "Far out-of-equilibrium spin populations trigger giant spin injection into atomically thin MoS₂". *Nature Physics* 15, 347-+, (2019) [doi:10.1038/s41567-018-0406-3].
39. Choi, H., Tai, Y. Y. & Zhu, J. X. "Spin-fermion model for skyrmions in MnGe derived from strong correlations". *Physical Review B* 99, 7, (2019) [doi:10.1103/PhysRevB.99.134437].
40. Clark, J. A., Santiso, E. E. & Frischknecht, A. L. "Morphology and proton diffusion in a coarse-grained model of sulfonated poly(phenylenes)". *Journal of Chemical Physics* 151, 12, (2019) [doi:10.1063/1.5116684].
41. Cong, S., Zou, G. F., Lou, Y. H., Yang, H., Su, Y., Zhao, J., Zhang, C., Ma, P. P., Lu, Z., Fan, H. Y. & Huang, Z. F. "Fabrication of Nickel Oxide Nanopillar Arrays on Flexible Electrodes for Highly Efficient Perovskite Solar Cells". *Nano Letters* 19, 3676-3683, (2019) [doi:10.1021/acs.nanolett.9b00760].
42. Cook, R. F. & DelRio, F. W. "Material Flaw Populations and Component Strength Distributions in the Context of the Weibull Function". *Experimental Mechanics* 59, 279-293, (2019) [doi:10.1007/s11340-018-0423-2].
43. Cook, R. F., DelRio, F. W. & Boyce, B. L. "Predicting strength distributions of MEMS structures using flaw size and spatial density". *Microsystems & Nanoengineering* 5, 12, (2019) [doi:10.1038/s41378-019-0093-y].
44. Cordova, D. L. M., Fender, S. S., Kam, T. M., Seyd, J., Albrecht, M., Lu, P., Fischer, R. & Johnson, D. C. "Designed Synthesis and Structure-Property Relationships of Kinetically Stable (PbSe)(1+delta) (m)(VSe₂)(1) (m=1, 2, 3, 4) Heterostructures". *Chemistry of Materials* 31, 8473-8483, (2019) [doi:10.1021/acs.chemmater.9b02826].
45. Cowen, B. J., El-Genk, M. S., Hattar, K. & Briggs, S. A. "Investigations of irradiation effects in crystalline and amorphous SiC". *Journal of Applied Physics* 126, 12, (2019) [doi:10.1063/1.5085216].
46. Croom, B. P., Jin, H., Noell, P. J., Boyce, B. L. & Li, X. D. "Collaborative ductile rupture mechanisms of high-purity copper identified by in situ X-ray computed tomography". *Acta Materialia* 181, 377-384, (2019) [doi:10.1016/j.actamat.2019.10.005].
47. Cui, Y. C., Derby, B., Li, N. & Misra, A. "Design of bicontinuous metallic nanocomposites for high-strength and plasticity". *Materials & Design* 166, 8, (2019) [doi:10.1016/j.matdes.2019.107602].

48. Cui, Y. C., Li, N. & Misra, A. "An overview of interface-dominated deformation mechanisms in metallic nanocomposites elucidated using in situ straining in a TEM". *Journal of Materials Research* 34, 1469-1478, (2019) [doi:10.1557/jmr.2019.66].
49. Curry, M. J., Rudolph, M., England, T. D., Mounce, A. M., Jock, R. M., Bureau-Oxton, C., Harvey-Collard, P., Sharma, P. A., Anderson, J. M., Campbell, D. M., Wendt, J. R., Ward, D. R., Carr, S. M., Lilly, M. P. & Carroll, M. S. "Single-Shot Readout Performance of Two Heterojunction-Bipolar-Transistor Amplification Circuits at Millikelvin Temperatures". *Scientific Reports* 9, 8, (2019) [doi:10.1038/s41598-019-52868-1].
50. Curwen, C. A., Reno, J. L. & Williams, B. S. "Broadband continuous single-mode tuning of a short-cavity quantum-cascade VECSEL". *Nature Photonics* 13, 855-+, (2019) [doi:10.1038/s41566-019-0518-z].
51. Dattelbaum, D. M., Lang, J. M., Goodwin, P. M., Gibson, L. L., Gammel, W. P., Coe, J. D., Ticknor, C. & Leiding, J. A. "Shockwave compression and dissociation of ammonia gas". *Journal of Chemical Physics* 150, 10, (2019) [doi:10.1063/1.5063012].
52. de Bellefon, G. M., Bertsch, K. M., Chancey, M. R., Wang, Y. Q. & Thoma, D. J. "Influence of solidification structures on radiation-induced swelling in an additively-manufactured austenitic stainless steel". *Journal of Nuclear Materials* 523, 291-298, (2019) [doi:10.1016/j.jnucmat.2019.06.012].
53. Delker, C. J., Yoo, J., Swartzentruber, B. S. & Harris, C. T. "Position-Dependent Transport of n-p-n Junctions in Axially Doped SiGe Nanowire Transistors". *Ieee Electron Device Letters* 40, 686-689, (2019) [doi:10.1109/led.2019.2905527].
54. Dennett, C. A., Buller, D. L., Hattar, K. & Short, M. P. "Real-time thermomechanical property monitoring during ion beam irradiation using in situ transient grating spectroscopy". *Nuclear Instruments & Methods in Physics Research Section B-Beam Interactions with Materials and Atoms* 440, 126-138, (2019) [doi:10.1016/j.nimb.2018.10.025].
55. Dennis, A. M., Buck, M. R., Wang, F., Hartmann, N. F., Majumder, S., Casson, J. L., Watt, J. D., Doorn, S. K., Htoon, H., Sykora, M. & Hollingsworth, J. A. "Role of Interface Chemistry in Opening New Radiative Pathways in InP/CdSe Giant Quantum Dots with Blinking-Suppressed Two-Color Emission". *Advanced Functional Materials* 29, 10, (2019) [doi:10.1002/adfm.201809111].
56. Derby, B., Cui, Y. C., Baldwin, J., Arroyave, R., Dennkowicz, M. J. & Misra, A. "Processing of novel pseudomorphic Cu-Mo hierarchies in thin films". *Materials Research Letters* 7, 1-11, (2019) [doi:10.1080/21663831.2018.1546237].
57. Derby, B. K., Baldwin, J. K., Chen, D., Demkowicz, M. J., Wang, Y. Q. Q., Misra, A. & Li, N. "Faceted He-Filled "Pancakes" Confined within Nanoscale Metal Layers". *Jom*, 5, (2019) [doi:10.1007/s11837-019-03870-5].
58. Dervishi, E., Ji, Z. Q., Htoon, H., Sykora, M. & Doorn, S. K. "Raman spectroscopy of bottom-up synthesized graphene quantum dots: size and structure dependence". *Nanoscale* 11, 16571-16581, (2019) [doi:10.1039/c9nr05345j].

59. Ding, J., Neffati, D., Li, Q., Su, R., Li, J., Xue, S., Shang, Z., Zahng, Y., Wang, H., Kulkarni, Y. & Zhang, X. "Thick grain boundary induced strengthening in nanocrystalline Ni alloy". *Nanoscale* 11, 23449-23458, (2019) [doi:10.1039/c9nr06843k].
60. Diouf, S. I. Y., Williams, D. J., Seifert, S., Londono-Calderon, A., Pettes, M. T., Sheehan, C. J. & Firestone, M. A. "Multi-stimuli responsive tetra-PPO60-PEO20 ethylene diamine block copolymer enables pH, temperature, and solvent regulation of Au nanoparticle composite plasmonic response". *Polymer Chemistry* 10, 6456-6472, (2019) [doi:10.1039/c9py01098j].
61. Dressler, A. D., Jost, E. W., Miers, J. C., Moore, D. G., Seepersad, C. C. & Boyce, B. L. "Heterogeneities dominate mechanical performance of additively manufactured metal lattice struts". *Additive Manufacturing* 28, 692-703, (2019) [doi:10.1016/j.addma.2019.06.011].
62. Du, J. L., Qiu, Y. H., Zhang, J., Huang, J. C., Wu, Z. M., Zhang, X. F., Wang, Y. H., Baldwin, J. K., Wang, Y. Q., Wang, Y. G. & Fu, E. G. "The alleviation of radiation-damage on Nb/MgO film driven by strain gradient in He ion irradiation". *Applied Surface Science* 465, 1014-1018, (2019) [doi:10.1016/j.apsusc.2018.09.174].
63. Efimov, A. "Different measures of speckle and coherence at the output of a multimode optical fiber". *Journal of the Optical Society of America a-Optics Image Science and Vision* 36, 1-11, (2019) [doi:10.1364/josaa.36.000001].
64. Efimov, A. "Simple Model for Spatial Coherence of Light at the Output of a Multimode Fiber". *Journal of Lightwave Technology* 37, 5647-5651, (2019) [doi:10.1109/jlt.2019.2915788].
65. El-Atwani, O., Esquivel, E., Aydogan, E., Martinez, E., Baldwin, J. K., Li, M., Uberuaga, B. P. & Maloy, S. A. "Unprecedented irradiation resistance of nanocrystalline tungsten with equiaxed nanocrystalline grains to dislocation loop accumulation". *Acta Materialia* 165, 118-128, (2019) [doi:10.1016/j.actamat.2018.11.024].
66. El-Atwani, O., Gigax, J., Chancey, M., Baldwin, J. K. S. & Maloy, S. A. "Nanomechanical properties of pristine and heavy ion irradiated nanocrystalline tungsten". *Scripta Materialia* 166, 159-163, (2019) [doi:10.1016/j.scriptamat.2019.03.014].
67. El-Atwani, O., Li, N., Li, M., Devaraj, A., Baldwin, J. K. S., Schneider, M. M., Sobieraj, D., Wrobel, J. S., Nguyen-Manh, D., Maloy, S. A. & Martinez, E. "Outstanding radiation resistance of tungsten-based high-entropy alloys". *Science Advances* 5, 9, (2019) [doi:10.1126/sciadv.aav2002].
68. Elkin, T., Copp, S. M., Hamblin, R. L., Martinez, J. S., Montano, G. A. & Rocha, R. C. "Synthesis of Terpyridine-Terminated Amphiphilic Block Copolymers and Their Self-Assembly into Metallo-Polymer Nanovesicles". *Materials* 12, 10, (2019) [doi:10.3390/ma12040601].
69. Evenstein, E., Rosy, Haber, S., Sclar, H., Houben, L., Leung, K., Leskes, M. & Noked, M. "Atomic surface reduction of interfaces utilizing vapor phase approach: High energy Li_xM_yCo_z oxide as a test case". *Energy Storage Materials* 19, 261-269, (2019) [doi:10.1016/j.ensm.2018.12.014].
70. Fan, C. C., Li, Q., Ding, J., Liang, Y. X., Shang, Z. X., Li, J., Su, R. Z., Cho, J., Chen, D., Wang, Y. Q., Wang, J., Wang, H. Y. & Zhang, X. H. "Helium irradiation induced ultra-high strength

- nanotwinned Cu with nanovoids". *Acta Materialia* 177, 107-120, (2019) [doi:10.1016/j.actamat.2019.07.003].
71. Fan, C. C., Xie, D. Y., Li, J., Shang, Z. X., Chen, Y. X., Xue, S. C., Wang, J., Li, M. M., El-Azab, A., Wang, H. Y. & Zhang, X. H. "9R phase enabled superior radiation stability of nanotwinned Cu alloys via in situ radiation at elevated temperature". *Acta Materialia* 167, 248-256, (2019) [doi:10.1016/j.actamat.2019.01.037].
72. Fan, X., Nie, W. Y., Tsai, S. H., Wang, N. X., Huang, H. H., Cheng, Y. J., Wen, R. J., Ma, L. J., Yan, F. & Xia, Y. G. "PEDOT:PSS for Flexible and Stretchable Electronics: Modifications, Strategies, and Applications". *Advanced Science*, 41, (2019) [doi:10.1002/advs.201900813].
73. Fan, Z., Zhao, S. J., Jin, K., Chen, D., Ossetskiy, Y. N., Wang, Y. Q., Bei, H. B., More, K. L. & Zhang, Y. W. "Helium irradiated cavity formation and defect energetics in Ni-based binary single-phase concentrated solid solution alloys". *Acta Materialia* 164, 283-292, (2019) [doi:10.1016/j.actamat.2018.10.040].
74. Fang, L., Schmeltzer, D., Zhu, J. X. & Saxena, A. "A tunneling current measurement scheme to observe Majorana-zero-mode-induced crossed Andreev reflection". *New Journal of Physics* 21, 14, (2019) [doi:10.1088/1367-2630/ab4c7e].
75. Farmer, T. O., Guo, E. J., Desautels, R. D., DeBeer-Schmitt, L., Chen, A. P., Wang, Z. C., Jia, Q. X., Borchers, J. A., Gilbert, D. A., Holladay, B., Sinha, S. K. & Fitzsimmons, M. R. "Nanoscale magnetization inhomogeneity within single phase nanopillars". *Physical Review Materials* 3, 8, (2019) [doi:10.1103/PhysRevMaterials.3.081401].
76. Fescenko, I., Laraoui, A., Smits, J., Mosavian, N., Kehayias, P., Seto, J., Bougas, L., Jarmola, A. & Acosta, V. M. "Diamond Magnetic Microscopy of Malarial Hemozoin Nanocrystals". *Physical Review Applied* 11, 19, (2019) [doi:10.1103/PhysRevApplied.11.034029].
77. Freixas, V. M., Ondarse-Alvarez, D., Tretiak, S., Makhov, D. V., Shalashilin, D. V. & Fernandez-Alberti, S. "Photoinduced non-adiabatic energy transfer pathways in dendrimer building blocks". *Journal of Chemical Physics* 150, 10, (2019) [doi:10.1063/1.5086680].
78. Frischknecht, A. L., Paren, B. A., Middleton, L. R., Koski, J. P., Tarver, J. D., Tyagi, M., Soles, C. L. & Winey, K. I. "Chain and Ion Dynamics in Precise Polyethylene Ionomers". *Macromolecules* 52, 7939-7950, (2019) [doi:10.1021/acs.macromol.9b01712].
79. Frischknecht, A. L. & Winey, K. I. "The evolution of acidic and ionic aggregates in ionomers during microsecond simulations". *Journal of Chemical Physics* 150, 10, (2019) [doi:10.1063/1.5085069].
80. Ganji, M., Paulk, A. C., Yang, J. C., Vahidi, N. W., Lee, S. H., Liu, R., Hossain, L., Arneodo, E. M., Thunemann, M., Shigyo, M., Tanaka, A., Ryu, S. B., Lee, S. W., Tchoe, Y., Marsala, M., Devor, A., Cleary, D. R., Martin, J. R., Oh, H., Gilja, V., Gentner, T. Q., Fried, S. I., Halgren, E., Cash, S. S. & Dayeh, S. A. "Selective Formation of Porous Pt Nanorods for Highly Electrochemically Efficient Neural Electrode Interfaces". *Nano Letters* 19, 6244-6254, (2019) [doi:10.1021/acs.nanolett.9b02296].

81. Gao, L., Zhao, L., Reno, J. L. & Kumar, S. "Electrical tuning of a terahertz quantum cascade laser based on detuned intersubband absorption". *Applied Physics Letters* 115, 5, (2019) [doi:10.1063/1.5118770].
82. Getto, E., Baker, B., Tobie, B., Briggs, S., Hattar, K. & Knipling, K. "Effect of friction stir welding and self-ion irradiation on dispersoid evolution in oxide dispersion strengthened steel MA956 up to 25 dpa". *Journal of Nuclear Materials* 515, 407-419, (2019) [doi:10.1016/j.jnucmat.2018.12.040].
83. Ghosh, A., Trujillo, D. P., Choi, H., Nakhmanson, S. M., Alpay, S. P. & Zhu, J. X. "Electronic and Magnetic Properties of Lanthanum and Strontium Doped Bismuth Ferrite: A First-Principles Study". *Scientific Reports* 9, 10, (2019) [doi:10.1038/s41598-018-37339-3].
84. Ghosh, D., Acharya, D., Zhou, L. J., Nie, W. Y., Prezhdo, O. V., Tretiak, S. & Neukirch, A. J. "Lattice Expansion in Hybrid Perovskites: Effect on Optoelectronic Properties and Charge Carrier Dynamics". *Journal of Physical Chemistry Letters* 10, 5000-5007, (2019) [doi:10.1021/acs.jpcllett.9b02020].
85. Gifford, B. J., He, X. W., Kim, M., Kwon, H., Saha, A., Sifain, A. E., Wang, Y. H., Htoon, H., Kilina, S., Doorn, S. K. & Tretiak, S. "Optical Effects of Divalent Functionalization of Carbon Nanotubes". *Chemistry of Materials* 31, 6950-6961, (2019) [doi:10.1021/acs.chemmater.9b01438].
86. Gifford, B. J., Saha, A., Weight, B. M., He, X. W., Ao, G. Y., Zheng, M., Htoon, H., Kilina, S., Doorn, S. K. & Tretiak, S. "Mod(n-m,3) Dependence of Defect-State Emission Bands in Aryl-Functionalized Carbon Nanotubes". *Nano Letters* 19, 8503-8509, (2019) [doi:10.1021/acs.nanolett.9b02926].
87. Gifford, B. J., Weight, B. M. & Kilina, S. "Interplay between Conjugated Backbone Units and Side Alkyl Groups in Chirality Sensitive Interactions of Single Walled Carbon Nanotubes with Polyfluorenes". *Journal of Physical Chemistry C* 123, 24807-24817, (2019) [doi:10.1021/acs.jpcc.9b04869].
88. Gigax, J. G., Baldwin, J. K., Sheehan, C. J., Maloy, S. A. & Li, N. "Microscale shear specimens for evaluating the shear deformation in single-crystal and nanocrystalline Cu and at Cu-Si interfaces". *Journal of Materials Research* 34, 1574-1583, (2019) [doi:10.1557/jmr.2019.104].
89. Gigax, J. G., Vo, H., McCulloch, Q., Chancey, M., Wang, Y. Q., Maloy, S. A., Li, N. & Hosemann, P. "Micropillar compression response of femtosecond laser-cut single crystal Cu and proton irradiated Cu". *Scripta Materialia* 170, 145-149, (2019) [doi:10.1016/j.scriptamat.2019.05.004].
90. Gubaev, K., Podryabinkin, E. V., Hart, G. L. W. & Shapeev, A. V. "Accelerating high-throughput searches for new alloys with active learning of interatomic potentials". *Computational Materials Science* 156, 148-156, (2019) [doi:10.1016/j.commatsci.2018.09.031].
91. Guo, J. Y., Wang, T., Zhao, H., Wang, X. K., Feng, S. F., Han, P., Sun, W. F., Ye, J. S., Situ, G., Chen, H. T. & Zhang, Y. "Reconfigurable Terahertz Metasurface Pure Phase Holograms". *Advanced Optical Materials* 7, 7, (2019) [doi:10.1002/adom.201801696].

92. Han, H., Karlicky, F., Pitchaimuthu, S., Shin, S. H. R. & Chen, A. P. "Highly Ordered N-Doped Carbon Dots Photosensitizer on Metal-Organic Framework-Decorated ZnO Nanotubes for Improved Photoelectrochemical Water Splitting". *Small*, 7, (2019) [doi:10.1002/smll.201902771].
93. Hao, G., Mosey, A., Jiang, X., Yost, A. J., Sapkota, K. R., Wang, G. T., Zhang, X., Zhang, J., N'Diaye, A. T., Cheng, R., Xu, X. & Dowben, P. A. "Nonvolatile voltage controlled molecular spin state switching". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5054909].
94. Hardy, W. J., Harris, C. T., Sue, Y.-H., Chuang, Y., Moussa, J., Maurer, L. N., Li, J.-Y., Lu, T.-M. & Luhman, D. R. "Single and double hole quantum dots in strained Ge/SiGe quantum wells". *Nanotechnology* 30, (2019) [doi:10.1088/1361-6528/ab061e].
95. Harriman, T. A., Lee, J. K., Sung, G. Y. & Lucca, D. A. "Photoluminescence of Cerium Doped Si Nanocrystals Embedded in Silicon Nitride Films". *Physica Status Solidi B-Basic Solid State Physics* 256, 4, (2019) [doi:10.1002/pssb.201800706].
96. Harvey-Collard, P., Jacobson, N. T., Bureau-Oxton, C., Jock, R. M., Srinivasa, V., Mounce, A. M., Ward, D. R., Anderson, J. M., Manginell, R. P., Wendt, J. R., Pluym, T., Lilly, M. P., Luhman, D. R., Pioro-Ladriere, M. & Carroll, M. S. "Spin-orbit Interactions for Singlet-Triplet Qubits in Silicon". *Physical Review Letters* 122, 6, (2019) [doi:10.1103/PhysRevLett.122.217702].
97. Hayden, S. C., Chisholm, C., Grudt, R. O., Aguiar, J. A., Mook, W. M., Kotula, P. G., Pilyugina, T. S., Bufford, D. C., Hattar, K., Kucharski, T. J. & Taie, I. M. "Localized corrosion of low-carbon steel at the nanoscale". *npj Materials Degradation* 3, 17, (2019) [doi:10.1038/s41529-019-0078-1].
98. He, C., Goodwin, P. M., Yunus, A. I., Dickson, R. M. & Petty, J. T. "A Split DNA Scaffold for a Green Fluorescent Silver Cluster". *Journal of Physical Chemistry C* 123, 17588-17597, (2019) [doi:10.1021/acs.jpcc.9b03773].
99. He, X. W., Sun, L. Y., Gifford, B. J., Tretiak, S., Piryatinski, A., Li, X. Q., Htoon, H. & Doorn, S. K. "Intrinsic limits of defect-state photoluminescence dynamics in functionalized carbon nanotubes". *Nanoscale* 11, 9125-9132, (2019) [doi:10.1039/c9nr02175b].
100. Hettiarachchi, E., Paul, S., Cadol, D., Frey, B. & Rubasinghege, G. "Mineralogy Controlled Dissolution of Uranium from Airborne Dust in Simulated Lung Fluids (SLFs) and Possible Health Implications". *Environmental Science & Technology Letters* 6, 62-67, (2019) [doi:10.1021/acs.estlett.8b00557].
101. Hu, Z. J., Kim, Y., Krishnamurthy, S., Avdeev, I. D., Nestoklon, M. O., Singh, A., Malko, A. V., Gopalov, S. V., Hollingsworth, J. A. & Htoon, H. "Intrinsic Exciton Photophysics of PbS Quantum Dots Revealed by Low-Temperature Single Nanocrystal Spectroscopy". *Nano Letters* 19, 8519-8525, (2019) [doi:10.1021/acs.nanolett.9b02937].
102. Huang, C. K., Andrews, H. L., Baker, R. C., Fleming, R. L., Kim, D., Kwan, T. J. T., Piryatinski, A., Pavlenko, V. & Simakov, E. I. "Modeling of diamond field emitter arrays for a compact source of high brightness electron beams". *Journal of Applied Physics* 125, 14, (2019) [doi:10.1063/1.5086292].

103. Huber, D. L. "Controlling anisotropy in stereolithographically printed polymers". *Journal of Materials Science* 54, 2763-2765, (2019) [doi:10.1007/s10853-018-3110-x].
104. Huber, D. L. "Perspective: altering structure in a hierarchically assembled magnetic nanocomposite to rapidly tune optical reflection". *Journal of Materials Science* 54, 8059-8062, (2019) [doi:10.1007/s10853-019-03503-x].
105. Imam, Z. I. & Bachand, G. D. "Multicomponent and Multiphase Lipid Nanotubes Formed by Gliding Microtubule-Kinesin Motility and Phase-Separated Giant Unilamellar Vesicles". *Langmuir* 35, 16281-16289, (2019) [doi:10.1021/acs.langmuir.9b02637].
106. Innes-Gold, S. N., Pincus, P. A., Stevens, M. J. & Saleh, O. A. "Polyelectrolyte Conformation Controlled by a Trivalent-Rich Ion Jacket". *Physical Review Letters* 123, 6, (2019) [doi:10.1103/PhysRevLett.123.187801].
107. Islam, Z., Paoletta, A. L., Monterrosa, A. M., Schuler, J. D., Rupert, T. J., Hattar, K., Glavin, N. & Haque, A. "Heavy ion irradiation effects on GaN/AlGaN high electron mobility transistor failure at off-state". *Microelectronics Reliability* 102, 9, (2019) [doi:10.1016/j.microrel.2019.113493].
108. Jackson, S., Nakano, A., Vashishta, P. & Kalia, R. K. "Electrostrictive Cavitation in Water Induced by a SnO₂ Nanoparticle". *Acs Omega* 4, 22274-22279, (2019) [doi:10.1021/acsomega.9b00979].
109. Jain, M., Velisavljevic, N., Baldwin, J. K., Knezevic, M., Mara, N. A., Beyerlein, I. J. & Pathak, S. "Structure and properties of pseudomorphically transformed bcc Mg in Mg/Nb multilayered nanolaminates studied using synchrotron X-ray diffraction". *Journal of Applied Physics* 126, 8, (2019) [doi:10.1063/1.5097249].
110. Ji, Z. Q., Dervishi, E., Doorn, S. K. & Sykora, M. "Size-Dependent Electronic Properties of Uniform Ensembles of Strongly Confined Graphene Quantum Dots". *Journal of Physical Chemistry Letters* 10, 953-959, (2019) [doi:10.1021/acs.jpclett.9b00119].
111. Jiang, W. L., Conroy, M. A., Kruska, K., Olszta, M. J., Droubay, T. C., Schwantes, J. M., Taylor, C. A., Price, P. M., Hattar, K. & Devanathan, R. "In Situ Study of Particle Precipitation in Metal-Doped CeO₂ during Thermal Treatment and Ion Irradiation for Emulation of Irradiating Fuels". *Journal of Physical Chemistry C* 123, 2591-2601, (2019) [doi:10.1021/acs.jpcc.8b11027].
112. Jungjohann, K. L., Wheeler, D. R., Polksy, R., Brozik, S. M., Brozik, J. A. & Rudolph, A. R. "Liquid-cell scanning transmission electron microscopy and fluorescence correlation spectroscopy of DNA-directed gold nanoparticle assemblies". *Micron* 119, 54-63, (2019) [doi:10.1016/j.micron.2018.11.004].
113. Kalb, D. M., Adikari, S. H., Hong-Geller, E. & Werner, J. H. "Single-cell correlations of mRNA and protein content in a human monocytic cell line after LPS stimulation". *Plos One* 14, 16, (2019) [doi:10.1371/journal.pone.0215602].
114. Kang, K. S., Kononov, A., Lee, C. W., Leveillee, J. A., Shapera, E. P., Zhang, X. & Schleife, A. "Pushing the frontiers of modeling excited electronic states and dynamics to accelerate materials engineering and design". *Computational Materials Science* 160, 207-216, (2019) [doi:10.1016/j.commatsci.2019.01.004].

115. Karl, N., Vabishchevich, P. P., Liu, S., Sinclair, M. B., Keeler, G. A., Peake, G. M. & Brener, I. "All-optical tuning of symmetry protected quasi bound states in the continuum". *Applied Physics Letters* 115, 5, (2019) [doi:10.1063/1.5116031].
116. Karler, C., Alarid, L., Rosenberg, D. & Fan, H. Y. "Rapid Synthesis of Monodispersed TATB Microparticles in Ionic Liquid Micelles". *Mrs Advances* 4, 843-849, (2019) [doi:10.1557/adv.2018.623].
117. Kazeruni, N. M. B., Tsitkov, S. & Hess, H. "Assembling Molecular Shuttles Powered by Reversibly Attached Kinesins". *Jove-Journal of Visualized Experiments*, 7, (2019) [doi:10.3791/59068].
118. Khalatpour, A., Reno, J. L. & Hu, Q. "Phase-locked photonic wire lasers by pi coupling". *Nature Photonics* 13, 47-+, (2019) [doi:10.1038/s41566-018-0307-0].
119. Kim, J. S., Hazard, T. M., Houck, A. A. & Lyon, S. A. "A low-disorder metal-oxide-silicon double quantum dot". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5075486].
120. Kim, Y., Choi, Y. S., Park, S. Y., Kim, T., Hong, S. P., Lee, T. H., Moon, C. W., Lee, J. H., Lee, D., Hong, B. H. & Jang, H. W. "Au decoration of a graphene microchannel for self-activated chemoresistive flexible gas sensors with substantially enhanced response to hydrogen". *Nanoscale* 11, 2966-2973, (2019) [doi:10.1039/c8nr09076a].
121. Kim, Y., Kwon, K. C., Kang, S., Kim, C., Kim, T. H., Hong, S. P., Park, S. Y., Suh, J. M., Choi, M. J., Han, S. & Janet, H. W. "Two-Dimensional NbS₂ Gas Sensors for Selective and Reversible NO₂ Detection at Room Temperature". *Acs Sensors* 4, 2395-2402, (2019) [doi:10.1021/acssensors.9b00992].
122. Kim, Y., Velizhanin, K. A., He, X. W., Sarpkaya, I., Yomogida, Y., Tanaka, T., Kataura, H., Doorn, S. K. & Htoon, H. "Photoluminescence Intensity Fluctuations and Temperature-Dependent Decay Dynamics of Individual Carbon Nanotube sp(3) Defects". *Journal of Physical Chemistry Letters* 10, 1423-1430, (2019) [doi:10.1021/acs.jpclett.8b03732].
123. Kombaiah, B., Edmondson, P. D., Wang, Y., Boatner, L. A. & Zhang, Y. "Mechanisms of radiation-induced segregation around He bubbles in a Fe-Cr-Ni crystal". *Journal of Nuclear Materials* 514, 139-147, (2019) [doi:10.1016/j.jnucmat.2018.11.030].
124. Koski, J. P., Krook, N. M., Ford, J., Yahata, Y., Ohno, K., Murray, C. B., Frischknecht, A. L., Composto, R. J. & Riggelman, R. A. "Phase Behavior of Grafted Polymer Nanocomposites from Field-Based Simulations". *Macromolecules* 52, 5110-5121, (2019) [doi:10.1021/acs.macromol.9b00720].
125. Kowalski, B. M., Manz, N., Bethke, D., Shaner, E. A., Serov, A. & Kalugin, N. G. "Role of humidity in oxidation of ultrathin GaSe". *Materials Research Express* 6, 5, (2019) [doi:10.1088/2053-1591/ab1dd2].
126. Kramer, S. L. B., Jones, A., Mostafa, A., Ravaji, B., Tancogne-Dejean, T., Roth, C. C., Bandpay, M. G., Pack, K., Foster, J. T., Behzadinasab, M., Sobotka, J. C., McFarland, J. M., Stein, J., Spear, A. D., Newell, P., Czabaj, M. W., Williams, B., Simha, H., Gesing, M., Gilkey, L. N., Jones, C. A., Dingreville, R., Sanborn, S. E., Bignell, J. L., Cerrone, A. R., Keim, V., Nonn, A., Cooreman, S.,

- Thibaux, P., Ames, N., Connor, D. O., Parno, M., Davis, B., Tucker, J., Coudrillier, B., Karlson, K. N., Ostien, J. T., Foulk, J. W., Hammetter, C. I., Grange, S., Emery, J. M., Brown, J. A., Bishop, J. E., Johnson, K. L., Ford, K. R., Brinckmann, S., Neilsen, M. K., Jackiewicz, J., Ravi-Chandar, K., Ivanoff, T., Salzbrenner, B. C. & Boyce, B. L. "The third Sandia fracture challenge: predictions of ductile fracture in additively manufactured metal". *International Journal of Fracture* 218, 5-61, (2019) [doi:10.1007/s10704-019-00361-1].
127. Kunka, C., Boyce, B. L., Foiles, S. M. & Dingreville, R. "Revealing inconsistencies in X-ray width methods for nanomaterials". *Nanoscale* 11, 22456-22466, (2019) [doi:10.1039/c9nr08268a].
128. Kwon, H., Kim, M., Nutz, M., Hartmann, N. F., Perrin, V., Meany, B., Hofmann, M. S., Clark, C. W., Htoon, H., Doorn, S. K., Hoegele, A. & Wang, Y. H. "Probing Trions at Chemically Tailored Trapping Defects". *Acs Central Science* 5, 1786-1794, (2019) [doi:10.1021/acscentsci.9b00707].
129. Kwon, J., Park, J. H., Delker, C. J., Harris, C. T., Swartzentruber, B., Das, S. R. & Janes, D. B. "Transitions between channel and contact regimes of low-frequency noise in many-layer MoS₂ field effect transistors". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5063501].
130. Lai, C. Y., Trugman, S. A. & Zhu, J. X. "Optical absorption spectroscopy in hybrid systems of plasmons and excitons". *Nanoscale* 11, 2037-2047, (2019) [doi:10.1039/c8nr02310g].
131. Lai, C. Y. & Zhu, J. X. "Ultrafast X-Ray Absorption Spectroscopy of Strongly Correlated Systems: Core Hole Effect". *Physical Review Letters* 122, 6, (2019) [doi:10.1103/PhysRevLett.122.207401].
132. Lechman, J. B., Bond, S. D., Bolintineanu, D. S., Grest, G. S., Yarrington, C. D. & Silbert, L. E. "Random walks on jammed networks: Spectral properties". *Physical Review E* 100, 6, (2019) [doi:10.1103/PhysRevE.100.012905].
133. Lee, S. R., Sharma, P. A., Lima-Sharma, A. L., Pan, W. & Nenoff, T. M. "Topological Quantum Materials for Realizing Majorana Quasiparticles". *Chemistry of Materials* 31, 26-51, (2019) [doi:10.1021/acs.chemmater.8b04383].
134. Lee, Y. H., Xiao, S., Kim, K. W., Reno, J. L., Bird, J. P. & Han, J. E. "Giant Zero Bias Anomaly due to Coherent Scattering from Frozen Phonon Disorder in Quantum Point Contacts". *Physical Review Letters* 123, 6, (2019) [doi:10.1103/PhysRevLett.123.056802].
135. Leroux, M., Balakirev, F. F., Miura, M., Agatsuma, K., Civale, L. & Maiorov, B. "Dynamics and Critical Currents in Fast Superconducting Vortices at High pulsed Magnetic Fields". *Physical Review Applied* 11, 10, (2019) [doi:10.1103/PhysRevApplied.11.054005].
136. Leveilée, J., Katan, C., Even, J., Ghosh, D., Nie, W., Mohite, A. D., Tretiak, S., Schleife, A. & Neukirch, A. J. "Tuning Electronic Structure in Layered Hybrid Perovskites with Organic Spacer Substitution". *Nano Letters* 19, 8732-8740, (2019) [doi:10.1021/acs.nanolett.9b03427].
137. Li, J. R., Liu, Z. D., Guo, Q. L., Yang, S. W., Xu, A. L., Wang, Z. W., Wang, G., Wang, Y. Q., Chen, D. & Ding, G. Q. "Controllable growth of vertically oriented graphene for high sensitivity gas detection". *Journal of Materials Chemistry C* 7, 5995-6003, (2019) [doi:10.1039/c9tc01246j].

138. Li, L. G., Cheng, J. L., Wang, H., Huang, J. J., Gao, X. Y., Wan, X. J., Misra, S., Zhang, B., Jian, J., Chen, A. P., Lu, P., Qian, X. F., Yang, K. S. & Wang, H. Y. "Interfacial Engineering Enabled Novel Bi-Based Layered Oxide Supercells with Modulated Microstructures and Tunable Physical Properties". *Crystal Growth & Design* 19, 7088-7095, (2019) [doi:10.1021/acs.cgd.9b00938].
139. Li, M. Y. M., Claire, F. J., Solomos, M. A., Tenney, S. M., Ivanov, S. A., Siegler, M. A. & Kempa, T. J. "Molecular chains of coordinated dimolybdenum isonicotinate paddlewheel clusters". *Rsc Advances* 9, 16492-16495, (2019) [doi:10.1039/c9ra03572a].
140. Li, M. Y. M. & Ivanov, S. A. "2D nanocrystalline ternary selenides Cu₂MSe₄ (M = Mo/W)". *Dalton Transactions* 48, 15795-15801, (2019) [doi:10.1039/c9dt03282g].
141. Li, N., Parker, S. S., Saleh, T. A., Maloy, S. A. & Nelson, A. T. "Intermediate temperature corrosion behaviour of Fe-12Cr-6Al-2Mo-0.2Si-0.03Y alloy (C26M) at 300-600 degrees C". *Corrosion Science* 157, 274-283, (2019) [doi:10.1016/j.corsci.2019.05.029].
142. Li, Q., Cho, J., Xue, S. C., Sun, X., Zhang, Y. F., Shang, Z. X., Wang, H. Y. & Zhang, X. H. "High temperature thermal and mechanical stability of high-strength nanotwinned Al alloys". *Acta Materialia* 165, 142-152, (2019) [doi:10.1016/j.actamat.2018.11.011].
143. Li, W. H., Ivanov, S., Mozaffari, S., Shanaiah, N. & Karim, A. M. "Palladium Acetate Trimer: Understanding Its Ligand-Induced Dissociation Thermochemistry Using Isothermal Titration Calorimetry, X-ray Absorption Fine Structure, and P-31 Nuclear Magnetic Resonance". *Organometallics* 38, 451-460, (2019) [doi:10.1021/acs.organomet.8b00787].
144. Liang, H., Grest, G. S. & Dobrynin, A. V. "Brush-Like Polymers and Entanglements: From Linear Chains to Filaments". *Acs Macro Letters* 8, 1328-1333, (2019) [doi:10.1021/acsmacrolett.9b00519].
145. Liu, P. C., Wang, Y. X., Gu, Q. L., Nanda, J., Watt, J. & Mitlin, D. "Dendrite-Free Potassium Metal Anodes in a Carbonate Electrolyte". *Advanced Materials*, 11, (2019) [doi:10.1002/adma.201906735].
146. Liu, Y. Q., Wang, L., Feng, H. X., Ren, X. T., Ji, J. J., Bai, F. & Fan, H. Y. "Microemulsion-Assisted Self-Assembly and Synthesis of Size-Controlled Porphyrin Nanocrystals with Enhanced Photocatalytic Hydrogen Evolution". *Nano Letters* 19, 2614-2619, (2019) [doi:10.1021/acs.nanolett.9b00423].
147. Lu, X. J., Chen, A. P., Dai, Y. M., Wei, B., Xu, H. W., Wen, J. G., Li, N., Luo, Y. K., Gao, X., Enriquez, E., Wang, Z. C., Dowden, P., Yang, W. G., Zhao, Y. S. & Jia, Q. X. "Metallic interface induced by electronic reconstruction in crystalline-amorphous bilayer oxide films". *Science Bulletin* 64, 1567-1572, (2019) [doi:10.1016/j.scib.2019.08.026].
148. Luo, Y., He, X. W., Kim, Y., Blackburn, J. L., Doorn, S. K., Htoon, H. & Strauf, S. "Carbon Nanotube Color Centers in Plasmonic Nanocavities: A Path to Photon Indistinguishability at Telecom Bands". *Nano Letters* 19, 9037-9044, (2019) [doi:10.1021/acs.nanolett.9b04069].
149. Makarov, N. S., Ramasamy, K., Jackson, A., Velarde, A., Castaneda, C., Archuleta, N., Hebert, D., Bergren, M. R. & McDaniel, H. "Fiber-Coupled Luminescent Concentrators for Medical

- Diagnostics, Agriculture, and Telecommunications". *Acs Nano* 13, 9112-9121, (2019) [doi:10.1021/acsnano.9b03335].
150. Martinez, H., VanDelinder, V., Imam, Z. I., Spoerke, E. D. & Bachand, G. D. "How non-bonding domains affect the active assembly of microtubule spools". *Nanoscale* 11, 11562-11568, (2019) [doi:10.1039/c9nr02059d].
151. Mazumder, S., Catalan, J. A., Delgado, A., Yamaguchi, H., Villarrubia, C. N., Mohite, A. D. & Kaul, A. B. "Opto-electro-mechanical percolative composites from 2D layered materials: Properties and applications in strain sensing". *Composites Science and Technology* 182, 11, (2019) [doi:10.1016/j.compscitech.2019.107687].
152. Mbatang, R., Xue, D. Q., Enriquez, E., Yuan, R. H., Han, H., Dowden, P., Wang, Q., Fohtung, E., Xue, D. Z., Lookman, T., Pennycook, S. J. & Chen, A. P. "Enhanced magnetism in lightly doped manganite heterostructures: strain or stoichiometry?". *Nanoscale* 11, 7364-7370, (2019) [doi:10.1039/c8nr09693g].
153. McComb, D. W., Lengyel, J. & Carter, C. B. "Cryogenic transmission electron microscopy for materials research". *Mrs Bulletin* 44, 924-928, (2019) [doi:10.1557/mrs.2019.283].
154. McDannald, A., Vijayan, S., Shi, J., Chen, A., Jia, Q. X., Aindow, M. & Jain, M. "Magnetic and tunable dielectric properties of DyCrO₃ thin films". *Journal of Materials Science* 54, 8984-8994, (2019) [doi:10.1007/s10853-019-03524-6].
155. Meyer, K. C., Labriola, N. R., Darling, E. M. & Kaehr, B. "Shape-Preserved Transformation of Biological Cells into Synthetic Hydrogel Microparticles". *Advanced Biosystems* 3, 6, (2019) [doi:10.1002/adbi.201800285].
156. Micheva-Viteva, S. N., Ross, B. N., Gao, J., Adikari, S., Zhang, P. F., Mourant, J. R., Wu, T. H., Werner, J. H., Torres, A. G. & Hong-Geller, E. "Increased Mortality in Mice following Immunoprophylaxis Therapy with High Dosage of Nicotinamide in Burkholderia Persistent Infections". *Infection and Immunity* 87, 16, (2019) [doi:10.1128/iai.00592-18].
157. Mierzejewski, M., Prelovsek, P. & Bonca, J. "Einstein Relation for a Driven Disordered Quantum Chain in the Subdiffusive Regime". *Physical Review Letters* 122, 7, (2019) [doi:10.1103/PhysRevLett.122.206601].
158. Mills, A. R., Feldman, M. M., Monical, C., Lewis, P. J., Larson, K. W., Mounce, A. M. & Petta, J. R. "Computer-automated tuning procedures for semiconductor quantum dot arrays". *Applied Physics Letters* 115, 5, (2019) [doi:10.1063/1.5121444].
159. Ming, K. S., Gu, C., Su, Q., Wang, Y. Q., Zare, A., Lucca, D. A., Nastasi, M. & Wang, J. "Strength and plasticity of amorphous silicon oxycarbide". *Journal of Nuclear Materials* 516, 289-296, (2019) [doi:10.1016/j.jnucmat.2019.01.035].
160. Ming, K. S., Su, Q., Gu, C., Xie, D. Y., Wang, Y. Q., Nastasi, M. & Wang, J. "Influence of Metal Additives on Microstructure and Properties of Amorphous Metal-SiOC Composites". *Jom* 71, 2445-2451, (2019) [doi:10.1007/s11837-019-03484-x].

161. Mishkat-Ul-Masabih, S. M., Aragon, A. A., Monavarian, M., Luk, T. S. & Feezell, D. F. "Electrically injected nonpolar GaN-based VCSELs with lattice-matched nanoporous distributed Bragg reflector mirrors". *Applied Physics Express* 12, 5, (2019) [doi:10.7567/1882-0786/ab0576].
162. Mishkat-Ul-Masabih, S. M., Luk, T. S., Monavarian, M. & Feezell, D. F. "Polarization-pinned emission of a continuous-wave optically pumped nonpolar GaN-based VCSEL using nanoporous distributed Bragg reflectors". *Optics Express* 27, 9495-9501, (2019) [doi:10.1364/oe.27.009495].
163. Misra, S., Li, L. G., Zhang, D., Jian, J., Qi, Z. M., Fan, M., Chen, H. T., Zhang, X. H. & Wang, H. Y. "Self-Assembled Ordered Three-Phase Au-BaTiO₃-ZnO Vertically Aligned Nanocomposites Achieved by a Templating Method". *Advanced Materials* 31, 8, (2019) [doi:10.1002/adma.201806529].
164. Muralidharan, A., Pratt, L. R., Chaudhari, M. I. & Rempe, S. B. "Quasi-Chemical Theory for Anion Hydration and Specific Ion Effects: Cl-(aq) vs. F-(aq)". *Chemical Physical Letters: X* 4, 100037, (2019) [doi:10.1016/j.cpletx.2019.100037].
165. Nami, M., Rashidi, A., Monavarian, M., Mishkat-Ul-Masabih, S., Rishinaramangalam, A. K., Brueck, S. R. J. & Feezell, D. "Electrically Injected GHz-Class GaN/InGaN Core-Nanowire-Based mu LEDs: Carrier Dynamics and Nanoscale Homogeneity". *ACS Photonics* 6, 1618-1625, (2019) [doi:10.1021/acsphotonics.9b00639].
166. Nathaniel, J. E., 2nd, Lang, A. C., El-Atwani, O., Suri, P. K., Baldwin, J. K., Kirk, M. A., Wang, Y. & Taheri, M. L. "Toward high-throughput defect density quantification: A comparison of techniques for irradiated samples". *Ultramicroscopy* 206, 112820, (2019) [doi:10.1016/j.ultramic.2019.112820].
167. Nathaniel, J. E., Lang, A. C., El-Atwani, O., Suri, P. K., Baldwin, J. K., Kirk, M. A., Wang, Y. Q. & Taheri, M. L. "Toward high-throughput defect density quantification: A comparison of techniques for irradiated samples". *Ultramicroscopy* 206, 9, (2019) [doi:10.1016/j.ultramic.2019.112820].
168. Ndefru, B. G., Ringstrand, B. S., Diouf, S. I. Y., Seifert, S., Leal, J. H., Semelsberger, T. A., Dreier, T. A. & Firestone, M. A. "Multiscale additive manufacturing of polymers using 3D photo-printable self-assembling ionic liquid monomers". *Molecular Systems Design & Engineering* 4, 580-585, (2019) [doi:10.1039/c8me00106e].
169. O'Connor, T. C., Hopkins, A. & Robbins, M. O. "Stress Relaxation in Highly Oriented Melts of Entangled Polymers". *Macromolecules* 52, 8540-8550, (2019) [doi:10.1021/acs.macromol.9b01161].
170. Occena, J., Jen, T., Mitchell, J. W., Linhart, W. M., Pavelescu, E. M., Kudrawiec, R., Wang, Y. Q. & Goldman, R. S. "Mapping the composition-dependence of the energy bandgap of GaAsNb_I alloys". *Applied Physics Letters* 115, 5, (2019) [doi:10.1063/1.5057424].

171. Olles, J. D., Wixom, R. R., Knepper, R. & Tappan, A. S. "Observations of shock-induced chemistry with subnanosecond resolution". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5092230].
172. Olson, J. Z., Schneider, S. H., Johansson, P. K., Luk, T. S. & Schlenker, C. W. "Stark Tuning Rates of Organic Carbonates Used in Electrochemical Energy Storage Devices". *Journal of Physical Chemistry C* 123, 11484-11492, (2019) [doi:10.1021/acs.jpcc.9b01501].
173. Pateras, A., Harder, R., Manna, S., Kiefer, B., Sandberg, R. L., Trugman, S., Kim, J. W., de la Venta, J., Fullerton, E. E., Shpyrko, O. G. & Fohtung, E. "Room temperature giant magnetostriction in single-crystal nickel nanowires". *Npg Asia Materials* 11, 7, (2019) [doi:10.1038/s41427-019-0160-8].
174. Paudel, B., Vasiliev, I., Hammouri, M., Karpov, D., Chen, A. P., Lauter, V. & Fohtung, E. "Strain vs. charge mediated magnetoelectric coupling across the magnetic oxide/ferroelectric interfaces". *Rsc Advances* 9, 13033-13041, (2019) [doi:10.1039/c9ra01503e].
175. Pelzman, C. & Cho, S. Y. "Wavefront detection using curved nanoscale apertures". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5094328].
176. Phan, H., Kelly, T. J., Zhugayevych, A., Bazan, G. C., Nguyen, T. Q., Jarvis, E. A. & Tretiak, S. "Tuning Optical Properties of Conjugated Molecules by Lewis Acids: Insights from Electronic Structure Modeling". *Journal of Physical Chemistry Letters* 10, 4632-4638, (2019) [doi:10.1021/acs.jpclett.9b01572].
177. Phillip, N. D., Ruther, R. E., Sang, X. H., Wang, Y. Q., Unocic, R. R., Westover, A. S., Daniel, C. & Veith, G. M. "Synthesis of Ni-Rich Thin-Film Cathode as Model System for Lithium Ion Batteries". *Acs Applied Energy Materials* 2, 1405-1412, (2019) [doi:10.1021/acsaem.8b01982].
178. Phillips, M. L. F. & Harrison, W. T. A. "Synthesis and crystal structure of calcium hydrogen phosphite, CaHPO₃". *Acta Crystallographica Section E-Crystallographic Communications* 75, 997-+, (2019) [doi:10.1107/s2056989019008235].
179. Piva, M. M., Thomas, S. M., Fisk, Z., Zhu, J. X., Thompson, J. D., Pagliuso, P. G. & Rosa, P. F. S. "Putative hybridization gap in CaMn₂Bi₂ under applied pressure". *Physical Review B* 100, 7, (2019) [doi:10.1103/PhysRevB.100.045108].
180. Piva, M. M., Zhu, W., Ronning, F., Thompson, J. D., Pagliuso, P. G. & Rosa, P. F. S. "CeAu₂Bi: A new nonsymmorphic antiferromagnetic compound". *Physical Review Materials* 3, 6, (2019) [doi:10.1103/PhysRevMaterials.3.071202].
181. Podryabinkin, E. V., Tikhonov, E. V., Shapeev, A. V. & Oganov, A. R. "Accelerating crystal structure prediction by machine-learning interatomic potentials with active learning". *Physical Review B* 99, 7, (2019) [doi:10.1103/PhysRevB.99.064114].
182. Poerwoprajitno, A. R., Gloag, L., Benedetti, T. M., Cheong, S., Watt, J., Huber, D. L., Gooding, J. J. & Tilley, R. D. "Formation of Branched Ruthenium Nanoparticles for Improved Electrocatalysis of Oxygen Evolution Reaction". *Small* 15, 6, (2019) [doi:10.1002/smll.201804577].

183. Protsak, I. S., Gun'ko, V. M., Henderson, I. M., Pakhlov, E. M., Sternik, D. & Le, Z. C. "Nanostructured Amorphous Silicas Hydrophobized by Various Pathways". *Acs Omega* 4, 13863-13871, (2019) [doi:10.1021/acsomega.9b01508].
184. Protsak, I. S., Morozov, Y. M., Dong, W., Le, Z. C., Zhang, D. & Henderson, I. M. "A Si-29, H-1, and C-13 Solid-State NMR Study on the Surface Species of Various Depolymerized Organosiloxanes at Silica Surface". *Nanoscale Research Letters* 14, 15, (2019) [doi:10.1186/s11671-019-2982-2].
185. Pung, A. J., Goldflam, M. D., Burckel, D. B., Brener, I., Sinclair, M. B. & Campione, S. "Enhancing Absorption Bandwidth through Vertically Oriented Metamaterials". *Applied Sciences-Basel* 9, 11, (2019) [doi:10.3390/app9112223].
186. Qavi, S., Bandegi, A., Firestone, M. & Foudazi, R. "Polymerization in soft nanoconfinement of lamellar and reverse hexagonal mesophases". *Soft Matter* 15, 8238-8250, (2019) [doi:10.1039/c9sm01565e].
187. Qavi, S., Firestone, M. A. & Foudazi, R. "Elasticity and yielding of mesophases of block copolymers in water-oil mixtures". *Soft Matter* 15, 5626-5637, (2019) [doi:10.1039/c8sm02336k].
188. Qavi, S., Lindsay, A. P., Firestone, M. A. & Foudazi, R. "Ultrafiltration membranes from polymerization of self-assembled Pluronic block copolymer mesophases". *Journal of Membrane Science* 580, 125-133, (2019) [doi:10.1016/j.memsci.2019.02.060].
189. Qi, Y., Shojaee, S. A., Harriman, T. A., Wang, Y. Q., Mehner, A. & Lucca, D. A. "Effects of nuclear and electronic stopping powers on the conversion of hybrid silicate thin films". *Nuclear Instruments & Methods in Physics Research Section B-Beam Interactions with Materials and Atoms* 444, 103-106, (2019) [doi:10.1016/j.nimb.2019.02.014].
190. Qin, W. J., Hong, M. Q., Wang, Y. Q., Tang, J., Cai, G. X., Yin, R., Ruan, X. F., Yang, B., Jiang, C. Z. & Ren, F. "Different Radiation Tolerances of Ultrafine-Grained Zirconia-Magnesia Composite Ceramics with Different Grain Sizes". *Materials* 12, 11, (2019) [doi:10.3390/ma12172649].
191. Qin, W. J., Jin, S. X., Cao, X. Z., Wang, Y. Q., Peres, P., Choi, S. Y., Jiang, C. Z. & Ren, F. "Influence of nanochannel structure on helium-vacancy cluster evolution and helium retention". *Journal of Nuclear Materials* 527, 8, (2019) [doi:10.1016/j.jnucmat.2019.151822].
192. Ramasamy, K., Kotula, P. G., Modine, N., Brumbach, M. T., Pietryga, J. M. & Ivanov, S. A. "Cubic SnGe nanoalloys: beyond thermodynamic composition limit". *Chemical Communications* 55, 2773-2776, (2019) [doi:10.1039/c8cc07570k].
193. Ramos, M., Nogan, J., Boll, T., Kauffmann-Weiss, S., Rodriguez-Gonzalez, C. A., Enriquez-Carrejo, J. L. & Heilmayer, M. "Study of indium tin oxide-MoS₂ interface by atom probe tomography". *Mrs Communications* 9, 1261-1266, (2019) [doi:10.1557/mrc.2019.150].
194. Reed, B. W., Moghadam, A. A., Bloom, R. S., Park, S. T., Monterrosa, A. M., Price, P. M., Barr, C. M., Briggs, S. A., Hattar, K., McKeown, J. T. & Masiel, D. J. "Electrostatic subframing and compressive-sensing video in transmission electron microscopy". *Structural Dynamics-Us* 6, 14, (2019) [doi:10.1063/1.5115162].

195. Rizzi, F., Khalil, M., Jones, R. E., Templeton, J. A., Ostien, J. T. & Boyce, B. L. "Bayesian modeling of inconsistent plastic response due to material variability". *Computer Methods in Applied Mechanics and Engineering* 353, 183-200, (2019) [doi:10.1016/j.cma.2019.05.012].
196. Rochette, S., Rudolph, M., Roy, A. M., Curry, M. J., Ten Eyck, G. A., Manginell, R. P., Wendt, J. R., Pluym, T., Carr, S. M., Ward, D. R., Lilly, M. P., Carroll, M. S. & Pioro-Ladriere, M. "Quantum dots with split enhancement gate tunnel barrier control". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5091111].
197. Rudolph, M., Sarabi, B., Murray, R., Carroll, M. S. & Zimmerman, N. M. "Long-term drift of Si-MOS quantum dots with intentional donor implants". *Scientific Reports* 9, 8, (2019) [doi:10.1038/s41598-019-43995-w].
198. Ruiz, I., Beechem, T. E., Smith, S., Dickens, P., Paisley, E. A., Shank, J., Howell, S. W., Sarma, R., Draper, B. L. & Goldflam, M. D. "Interface Defect Engineering for Improved Graphene-Oxide-Semiconductor Junction Photodetectors". *Acs Applied Nano Materials* 2, 6162-6168, (2019) [doi:10.1021/acsanm.9b00978].
199. Sapkota, K. R., Eley, S., Bussmann, E., Harris, C. T., Maurer, L. N. & Lu, T. M. "Creation of nanoscale magnetic fields using nano-magnet arrays". *Aip Advances* 9, 5, (2019) [doi:10.1063/1.5098768].
200. Sapkota, K. R., Lu, P., Medlin, D. L. & Wang, G. T. "High temperature synthesis and characterization of ultrathin tellurium nanostructures". *Apl Materials* 7, 5, (2019) [doi:10.1063/1.5109899].
201. Sarma, R., de Ceglia, D., Nookala, N., Vincenti, M. A., Campione, S., Wolf, O., Scalora, M., Sinclair, M. B., Belkin, M. A. & Brener, I. "Broadband and Efficient Second-Harmonic Generation from a Hybrid Dielectric Metasurface/Semiconductor Quantum-Well Structure". *ACS Photonics* 6, 1458-1465, (2019) [doi:10.1021/acspophotonics.9b00114].
202. Sartinska, L. L., Eren, T. & Efimov, A. "Formation of composite structure based on boron and indium components under concentrated light in flow of nitrogen". *Advances in Applied Ceramics* 118, 183-188, (2019) [doi:10.1080/17436753.2019.1574284].
203. Schuler, J. D., Barr, C. M., Heckman, N. M., Copeland, G., Boyce, B. L., Hattar, K. & Rupert, T. J. "In Situ High-Cycle Fatigue Reveals Importance of Grain Boundary Structure in Nanocrystalline Cu-Zr". *Jom* 71, 1221-1232, (2019) [doi:10.1007/s11837-019-03361-7].
204. Shao, S., Khonsari, M. M., Guo, S., Meng, W. J. & Li, N. "Overview: Additive Manufacturing Enabled Accelerated Design of Ni-based Alloys for Improved Fatigue Life". *Additive Manufacturing* 29, 13, (2019) [doi:10.1016/j.addma.2019.100779].
205. Shi, B. M., Nachtigalova, D., Aquino, A. J. A., Machado, F. B. C. & Lischka, H. "High-level theoretical benchmark investigations of the UV-vis absorption spectra of paradigmatic polycyclic aromatic hydrocarbons as models for graphene quantum dots". *Journal of Chemical Physics* 150, 13, (2019) [doi:10.1063/1.5086760].
206. Shi, B. M., Nachtigalova, D., Aquino, A. J. A., Machado, F. B. C. & Lischka, H. "Excited states and excitonic interactions in prototypic polycyclic aromatic hydrocarbon dimers as models for

- graphitic interactions in carbon dots". *Physical Chemistry Chemical Physics* 21, 9077-9088, (2019) [doi:10.1039/c9cp00635d].
207. Shi, B. M., Nachtigallova, D., Aquino, A. J. A., Machado, F. B. C. & Lischka, H. "Emission Energies and Stokes Shifts for Single Polycyclic Aromatic Hydrocarbon Sheets in Comparison to the Effect of Excimer Formation". *Journal of Physical Chemistry Letters* 10, 5592-5597, (2019) [doi:10.1021/acs.jpclett.9b02214].
208. Shikder, M. R. A., Ramasubramanian, A., Maksud, M., Yurkiv, V., Yoo, J., Harris, C. T., Vasudevamurthy, G., Mashayek, F. & Subramanian, A. "Plastic recovery and self-healing in longitudinally twinned SiGe nanowires". *Nanoscale* 11, 8959-8966, (2019) [doi:10.1039/c9nr02073j].
209. Shojaee, S. A., Qi, Y., Wang, Y. Q., Prenzel, T., Mehner, A. & Lucca, D. A. "Heat treatment of ion-irradiated silica-based thin films". *Nuclear Instruments & Methods in Physics Research Section B-Beam Interactions with Materials and Atoms* 447, 55-58, (2019) [doi:10.1016/j.nimb.2019.03.044].
210. Siday, T., Vabishchevich, P. P., Hale, L., Harris, C. T., Luk, T. S., Reno, J. L., Brener, I. & Mitrofanov, O. "Terahertz Detection with Perfectly-Absorbing Photoconductive Metasurface". *Nano Letters* 19, 2888-2896, (2019) [doi:10.1021/acs.nanolett.8b05118].
211. Sifain, A. E., Wang, L. J., Tretiak, S. & Prezhdo, O. V. "Numerical tests of coherence-corrected surface hopping methods using a donor-bridge-acceptor model system". *Journal of Chemical Physics* 150, 8, (2019) [doi:10.1063/1.5092999].
212. Silani, Y., Hubert, F. & Acosta, V. M. "Stimulated Emission Depletion Microscopy with Diamond Silicon Vacancy Centers". *ACS Photonics* 6, 2577-2582, (2019) [doi:10.1021/acsphotonics.9b01135].
213. Silva, S. R., Rahman, A., Kort-Kamp, W. D., Rushton, J. J., Singleton, J., Taylor, A. J., Dalvit, D. A. R., Chen, H. T. & Azad, A. "Metasurface-based ultra-lightweight high-gain off-axis flat parabolic reflectarray for microwave beam collimation/focusing". *Scientific Reports* 9, 7, (2019) [doi:10.1038/s41598-019-55221-8].
214. Singh, S., Chang, S., Kaira, C. S., Baldwin, J. K., Mara, N. & Chawla, N. "Microstructure and mechanical properties of co-sputtered Al-SiC composites". *Materials & Design* 168, 10, (2019) [doi:10.1016/j.matdes.2019.107670].
215. Singh, S., Kaira, C. S., Bale, H., Huynh, C., Merkle, A. & Chawla, N. "In situ micropillar compression of Al/SiC nanolaminates using laboratory-based nanoscale X-ray microscopy: Effect of nanopores on mechanical behavior". *Materials Characterization* 150, 207-212, (2019) [doi:10.1016/j.matchar.2019.02.030].
216. Sirica, N., Tobey, R. I., Zhao, L. X., Chen, G. F., Xu, B., Yang, R., Shen, B., Yarotski, D. A., Bowlan, P., Trugman, S. A., Zhu, J. X., Dai, Y. M., Azad, A. K., Ni, N., Qiu, X. G., Taylor, A. J. & Prasankumar, R. P. "Tracking Ultrafast Photocurrents in the Weyl Semimetal TaAs Using THz Emission Spectroscopy". *Physical Review Letters* 122, 6, (2019) [doi:10.1103/PhysRevLett.122.197401].

217. Smith, J. S., Nebgen, B. T., Zubatyuk, R., Lubbers, N., Devereux, C., Barros, K., Tretiak, S., Isayev, O. & Roitberg, A. E. "Approaching coupled cluster accuracy with a general-purpose neural network potential through transfer learning". *Nature Communications* 10, 8, (2019) [doi:10.1038/s41467-019-10827-4].
218. Smith, K. A., Savva, A. I., Mao, K. Y. S., Wang, Y. Q., Tenne, D. A., Chen, D., Liu, Y. Z., Barnes, P., Deng, C. J., Butt, D. P., Wharry, J. P. & Xiong, H. "Effect of proton irradiation on anatase TiO₂ nanotube anodes for lithium-ion batteries". *Journal of Materials Science* 54, 13221-13235, (2019) [doi:10.1007/s10853-019-03825-w].
219. Song, E. D., Swartzentruber, B. S., Koripella, C. R. & Martinez, J. A. "Highly Effective GeNi Alloy Contact Diffusion Barrier for BiSbTe Long-Term Thermal Exposure". *Acs Omega* 4, 9376-9382, (2019) [doi:10.1021/acsomega.9b00551].
220. Sorte, E. G., Frischknecht, A. L. & Alam, T. M. "NMR spin diffusion measurements in disordered polymers: Insights and limitations". *Physical Review Materials* 3, 10, (2019) [doi:10.1103/PhysRevMaterials.3.045602].
221. Sorte, E. G., Paren, B. A., Rodriguez, C. G., Fujimoto, C., Poirier, C., Abbott, L. J., Lynd, N. A., Winey, K. I., Frischknecht, A. L. & Alam, T. M. "Impact of Hydration and Sulfonation on the Morphology and Ionic Conductivity of Sulfonated Poly(phenylene) Proton Exchange Membranes". *Macromolecules* 52, 857-876, (2019) [doi:10.1021/acs.macromol.8b02013].
222. Srivastava, I., Peters, B. L., Lane, J. M. D., Fan, H. Y., Salerno, K. M. & Grest, G. S. "Mechanics of Gold Nanoparticle Superlattices at High Hydrostatic Pressures". *Journal of Physical Chemistry C* 123, 17530-17538, (2019) [doi:10.1021/acs.jpcc.9b02438].
223. Srivastava, I., Silbert, L. E., Grest, G. S. & Lechman, J. B. "Flow-Arrest Transitions in Frictional Granular Matter". *Physical Review Letters* 122, 6, (2019) [doi:10.1103/PhysRevLett.122.048003].
224. Sterczewski, L. A., Westberg, J., Yang, Y., Burghoff, D., Reno, J., Hu, Q. & Wysocki, G. "Terahertz hyperspectral imaging with dual chip-scale combs". *Optica* 6, 766-771, (2019) [doi:10.1364/optica.6.000766].
225. Studenikin, S., Korkusinski, M., Takahashi, M., Ducatel, J., Padawer-Blatt, A., Bogan, A., Austing, D. G., Gaudreau, L., Zawadzki, P., Sachrajda, A., Hirayama, Y., Tracy, L., Reno, J. & Hargett, T. "Electrically tunable effective g-factor of a single hole in a lateral GaAs/AlGaAs quantum dot". *Communications Physics* 2, 8, (2019) [doi:10.1038/s42005-019-0262-1].
226. Su, R. Z., Neffati, D., Cho, J. H., Li, Q., Ding, J., Wang, H. Y., Kulkarni, Y. & Zhang, X. H. "Phase transformation induced plasticity in high-strength hexagonal close packed Co with stacking faults". *Scripta Materialia* 173, 32-36, (2019) [doi:10.1016/j.scriptamat.2019.07.030].
227. Su, Y. H., Chou, K. Y., Chuang, Y., Lu, T. M. & Li, J. Y. "Electron mobility enhancement in an undoped Si/SiGe heterostructure by remote carrier screening". *Journal of Applied Physics* 125, 9, (2019) [doi:10.1063/1.5094848].

228. Sun, C., Sprouster, D. J., Zhang, Y. F., Chen, D., Wang, Y. Q., Ecker, L. E. & Gan, J. "Formation window of gas bubble superlattice in molybdenum under ion implantation". *Physical Review Materials* 3, 10, (2019) [doi:10.1103/PhysRevMaterials.3.103607].
229. Tanaka, A., Choi, W., Chen, R. J., Liu, R., Mook, W. M., Jungjohann, K. L., Yu, P. K. L. & Dayeh, S. A. "Structural and electrical characterization of thick GaN layers on Si, GaN, and engineered substrates". *Journal of Applied Physics* 125, 12, (2019) [doi:10.1063/1.5049393].
230. Tang, Y. F., Grest, G. S. & Cheng, S. F. "Control of Stratification in Drying Particle Suspensions via Temperature Gradients". *Langmuir* 35, 4296-4304, (2019) [doi:10.1021/acs.langmuir.8b03659].
231. Tang, Y. F., Grest, G. S. & Cheng, S. F. "Stratification of drying particle suspensions: Comparison of implicit and explicit solvent simulations". *Journal of Chemical Physics* 150, 9, (2019) [doi:10.1063/1.5066035].
232. Taylor, C. A., Briggs, S., Greaves, G., Monterrosa, A., Aradi, E., Sugar, J. D., Robinson, D. B., Hattar, K. & Hinks, J. A. "Investigating Helium Bubble Nucleation and Growth through Simultaneous In-Situ Cryogenic, Ion Implantation, and Environmental Transmission Electron Microscopy". *Materials* 12, 9, (2019) [doi:10.3390/ma12162618].
233. Taylor, C. A., Nenoff, T. M., Pratt, S. H. & Hattar, K. "Synthesis of complex rare earth nanostructures using in situ liquid cell transmission electron microscopy". *Nanoscale Advances* 1, 2229-2239, (2019) [doi:10.1039/c9na00197b].
234. Thomas, K., Mohanty, G., Wehrs, J., Taylor, A. A., Pathak, S., Casari, D., Schwiedrzik, J., Mara, N., Spolenak, R. & Michler, J. "Elevated and cryogenic temperature micropillar compression of magnesium-niobium multilayer films". *Journal of Materials Science* 54, 10884-10901, (2019) [doi:10.1007/s10853-019-03422-x].
235. Thrower, S. L., Kandala, S. K., Fuentes, D., Stefan, W., Sowko, N., Huang, M., Mathieu, K. & Hazle, J. D. "A compressed sensing approach to immobilized nanoparticle localization for superparamagnetic relaxometry". *Physics in Medicine and Biology* 64, 13, (2019) [doi:10.1088/1361-6560/ab3c06].
236. Tracy, L. A., Reno, J. L., Fallahi, S. & Manfra, M. J. "Integrated high electron mobility transistors in GaAs/AlGaAs heterostructures for amplification at sub-Kelvin temperatures". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5083818].
237. Tukachev, N. V., Maslenikov, D. R., Sosorev, A. Y., Tretiak, S. & Zhugayevych, A. "Ground-State Geometry and Vibrations of Polyphenylenevinylene Oligomers". *Journal of Physical Chemistry Letters* 10, 3232-3239, (2019) [doi:10.1021/acs.jpclett.9b01200].
238. Uberuaga, B. P., Dholabhai, P. P., Pilania, G. & Chen, A. P. "Semicoherent oxide heterointerfaces: Structure, properties, and implications". *Apl Materials* 7, 9, (2019) [doi:10.1063/1.5121027].
239. VanDelinder, V., Imam, Z. I. & Bachand, G. "Kinesin motor density and dynamics in gliding microtubule motility". *Scientific Reports* 9, 9, (2019) [doi:10.1038/s41598-019-43749-8].

240. Vizoso, D., Deo, C. & Dingreville, R. "Scaling laws and stability of nano-sized defect clusters in niobium via atomistic simulations and statistical analysis". *Journal of Materials Science* 54, 14002-14028, (2019) [doi:10.1007/s10853-019-03885-y].
241. Wang, B. B., Nakano, A., Vashishta, P. D. & Kalia, R. K. "Nanoindentation on Monolayer MoS₂ Kirigami". *Acs Omega* 4, 9952-9956, (2019) [doi:10.1021/acsomega.9b00771].
242. Wang, C. F., Habteyes, T. G., Luk, T. S., Klem, J. F., Brener, I., Chen, H. T. & Mitrofanov, O. "Observation of Intersubband Polaritons in a Single Nanoantenna Using Nano-FTIR Spectroscopy". *Nano Letters* 19, 4620-4626, (2019) [doi:10.1021/acs.nanolett.9b01623].
243. Wang, W., Yang, X. D., Luk, T. S. & Gao, J. "Enhanced quantum dots spontaneous emission with metamaterial perfect absorbers". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5081688].
244. Wang, X., Barr, C. M., Jin, K., Bei, H. B., Hattar, K., Weber, W. J., Zhang, Y. W. & More, K. L. "Defect evolution in Ni and NiCoCr by *in situ* 2.8 MeV Au irradiation". *Journal of Nuclear Materials* 523, 502-509, (2019) [doi:10.1016/j.jnucmat.2019.05.026].
245. Wang, X. J., Jian, J., Zhou, Z. G., Fan, C. C., Dai, Y. M., Li, L. G., Huang, J. J., Sun, J. N., Donohue, A., Bermel, P., Zhang, X. H., Chen, H. T. & Wang, H. Y. "Self-Assembled Ag-TiN Hybrid Plasmonic Metamaterial: Tailorable Tilted Nanopillar and Optical Properties". *Advanced Optical Materials* 7, 9, (2019) [doi:10.1002/adom.201801180].
246. Wang, Z., Yi, S., Chen, A., Zhou, M., Luk, T. S., James, A., Nogan, J., Ross, W., Joe, G., Shahsafi, A., Wang, K. X., Kats, M. A. & Yu, Z. F. "Single-shot on-chip spectral sensors based on photonic crystal slabs". *Nature Communications* 10, 6, (2019) [doi:10.1038/s41467-019-08994-5].
247. Wang, Z. H., Hoffbauer, M. A., Hollmann, E. M., Sun, Z., Wang, Y. M., Eidietis, N. W., Hu, J. S., Maingi, R., Menard, J. E. & Xu, X. Q. "Hollow pellet injection for magnetic fusion". *Nuclear Fusion* 59, 11, (2019) [doi:10.1088/1741-4326/ab19eb].
248. Watt, J., Huber, D. L. & Stewart, P. L. "Soft matter and nanomaterials characterization by cryogenic transmission electron microscopy". *Mrs Bulletin* 44, 942-948, (2019) [doi:10.1557/mrs.2019.285].
249. Weck, P. F., Kim, E., Gordon, M. E., Greathouse, J. A., Meserole, S. P. & Bryan, C. R. "Elucidating Structure-Spectral Property Relationships of Negative Thermal Expansion Zr-2(WO₄)(PO₄)₂: A First-Principles Study with Experimental Validation". *Journal of Physical Chemistry C* 123, 21607-21616, (2019) [doi:10.1021/acs.jpcc.9b06069].
250. Wei, G., Ren, F., Fang, J. Z., Hu, W. Y., Gao, F., Qin, W. J., Cheng, T., Wang, Y. Q., Jiang, C. Z. & Deng, H. Q. "Understanding the release of helium atoms from nanochannel tungsten: a molecular dynamics simulation". *Nuclear Fusion* 59, 11, (2019) [doi:10.1088/1741-4326/ab14c7].
251. Wei, W. B., Bai, F. & Fan, H. Y. "Surfactant-Assisted Cooperative Self-Assembly of Nanoparticles into Active Nanostructures". *Iscience* 11, 272-293, (2019) [doi:10.1016/j.isci.2018.12.025].

252. Wei, W. B., Bai, F. & Fan, H. Y. "Oriented Gold Nanorod Arrays: Self-Assembly and Optoelectronic Applications". *Angewandte Chemie-International Edition* 58, 11956-11966, (2019) [doi:10.1002/anie.201902620].
253. Wei, W. B., Sun, J. J. & Fan, H. Y. "Cooperative self-assembly of porphyrins and derivatives". *Mrs Bulletin* 44, 178-182, (2019) [doi:10.1557/mrs.2019.39].
254. Woerner, M., Somma, C., Reimann, K., Elsaesser, T., Liu, P. Q., Yang, Y. M., Reno, J. L. & Brener, I. "Terahertz Driven Amplification of Coherent Optical Phonons in GaAs Coupled to a Metasurface". *Physical Review Letters* 122, 12, (2019) [doi:10.1103/PhysRevLett.122.107402].
255. Wong, H. M. K., Yan, Z. Z., Hallman, K. A., Marvel, R. E., Prasankumar, R. P., Haglund, R. F. & Helmy, A. S. "Broadband, Integrated, Micron-Scale, All-Optical Si₃N₄/VO₂ Modulators with pJ Switching Energy". *ACS Photonics* 6, 2734-2740, (2019) [doi:10.1021/acsphotonics.9b00708].
256. Wu, W., Dass, C. K., Hendrickson, J. R., Montano, R. D., Fischer, R. E., Zhang, X. T., Choudhury, T. H., Redwing, J. M., Wang, Y. Q. & Pettes, M. T. "Locally defined quantum emission from epitaxial few-layer tungsten diselenide". *Applied Physics Letters* 114, 5, (2019) [doi:10.1063/1.5091779].
257. Wu, W., Morales-Acosta, M. D., Wang, Y. Q. & Pettes, M. T. "Isotope Effect in Bilayer WSe₂". *Nano Letters* 19, 1527-1533, (2019) [doi:10.1021/acs.nanolett.8b04269].
258. Xu, W. D., Xie, L. J., Zhu, J. F., Tang, L. H., Singh, R., Wang, C., Ma, Y. G., Chen, H. T. & Ying, Y. B. "Terahertz biosensing with a graphene-metamaterial heterostructure platform". *Carbon* 141, 247-252, (2019) [doi:10.1016/j.carbon.2018.09.050].
259. Yang, C. & Kaspi, R. "Design guidelines for on-chip unstable resonator cavity to suppress filamentation in GaSb-based diode lasers". *Journal of Applied Physics* 125, 5, (2019) [doi:10.1063/1.5100268].
260. Yang, Y. M., Lu, J., Manjavacas, A., Luk, T. S., Liu, H. Z., Kelley, K., Maria, J. P., Runnerstrom, E. L., Sinclair, M. B., Ghimire, S. & Brener, I. "High-harmonic generation from an epsilon-near-zero material". *Nature Physics* 15, 1022-+, (2019) [doi:10.1038/s41567-019-0584-7].
261. Yazdani, S., Huan, T. D., Liu, Y. F., Kashfi-Sadabad, R., Montano, R. D., He, J. & Pettes, M. T. "Highly charged interface trap states in PbS_{1-x} govern electro-thermal transport". *Apl Materials* 7, 9, (2019) [doi:10.1063/1.5096786].
262. Yazdani, S., Kim, H. Y. & Pettes, M. T. "A High Temperature Instrument for Consecutive Measurements of Thermal Conductivity, Electrical Conductivity, and Seebeck Coefficient". *Journal of Heat Transfer-Transactions of the Asme* 141, 12, (2019) [doi:10.1115/1.4043572].
263. Zachman, M. J., de Jonge, N., Fischer, R., Jungjohann, K. L. & Perea, D. E. "Cryogenic specimens for nanoscale characterization of solid-liquid interfaces". *Mrs Bulletin* 44, 949-955, (2019) [doi:10.1557/mrs.2019.289].
264. Zhang, S. H., Taylor, M. K., Jiang, L. C., Ren, H. & Zhu, G. S. "Light Hydrocarbon Separations Using Porous Organic Framework Materials". *Chemistry-a European Journal*, 18, (2019) [doi:10.1002/chem.201904455].

265. Zhang, Y., Nelson, T. & Tretiak, S. "Non-adiabatic molecular dynamics of molecules in the presence of strong light-matter interactions". *Journal of Chemical Physics* 151, 15, (2019) [doi:10.1063/1.5116550].
266. Zhang, Y. F., Xue, S., Li, Q., Li, J., Ding, J., Niu, T. J., Su, R., Wang, H. & Zhang, X. "Size dependent strengthening in high strength nanotwinned Al/Ti multilayers". *Acta Materialia* 175, 466-476, (2019) [doi:10.1016/j.actamat.2019.06.028].
267. Zhang, Y. W., Wang, X., Ossetsky, Y. N., Tong, Y., Harrison, R., Donnelly, S. E., Chen, D., Wang, Y. Q., Bei, H. B., Sales, B. C., More, K. L., Xiu, P. Y., Wang, L. M. & Weber, W. J. "Effects of 3d electron configurations on helium bubble formation and void swelling in concentrated solid-solution alloys". *Acta Materialia* 181, 519-529, (2019) [doi:10.1016/j.actamat.2019.10.013].
268. Zhao, D. M., Hu, H. W., Haselsberger, R., Marcus, R. A., Michel-Beyerle, M. E., Lam, Y. M., Zhu, J. X., La-o-vorakiat, C., Beard, M. C. & Chia, E. E. M. "Monitoring Electron-Phonon Interactions in Lead Halide Perovskites Using Time-Resolved THz Spectroscopy". *Acs Nano* 13, 8826-8835, (2019) [doi:10.1021/acsnano.9b02049].
269. Zhou, L. J., Katan, C., Nie, W. Y., Tsai, H. H., Pedesseau, L., Crochet, J. J., Even, J., Mohite, A. D., Tretiak, S. & Neukirch, A. J. "Cation Alloying Delocalizes Polarons in Lead Halide Perovskites". *Journal of Physical Chemistry Letters* 10, 3516-3524, (2019) [doi:10.1021/acs.jpclett.9b01077].
270. Zhu, J. T., Xu, H., Zou, G. F., Zhang, W., Chai, R. Q., Choi, J., Wu, J., Liu, H. Y., Shen, G. Z. & Fan, H. Y. "MoS₂-OH Bilayer-Mediated Growth of Inch-Sized Monolayer MoS₂ on Arbitrary Substrates". *Journal of the American Chemical Society* 141, 5392-5401, (2019) [doi:10.1021/jacs.9b00047].
271. Zubatyuk, R., Smith, J. S., Leszczynski, J. & Isayev, O. "Accurate and transferable multitask prediction of chemical properties with an atoms-in-molecules neural network". *Science Advances* 5, 9, (2019) [doi:10.1126/sciadv.aav6490].
272. Zubyuk, V. V., Vabishchevich, P. P., Shcherbakov, M. R., Shorokhov, A. S., Fedotova, A. N., Liu, S., Keeler, G., Dolgova, T. V., Staude, I., Brener, I. & Fedyanin, A. A. "Low-Power Absorption Saturation in Semiconductor Metasurfaces". *ACS Photonics* 6, 2797-2806, (2019) [doi:10.1021/acspophotonics.9b00842].